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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09 040,911 | 03.18.1998 | MICHAEL JOHN GRUNDY | TS7526 | 2422 |

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INFINEUM USA L.P.
P.O. BOX 710
LINDEN, NJ 07036

EXAMINER

MEDLEY, MARGARET B

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1714

DATE MAILED: 06/30/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/040,911 | GRUNDY ET AL. | |
| | Examiner | Art Unit | |
| | Margaret B. Medley | 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-10, 12-15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-10, 12-15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to Paper No. 15 dated April 11, 2003.

The cancellation of claims 4-5, 11 and 16 and the amendment to claim 1 has been entered of record.

The pending claims of record are claims 1-3, 6-10, 12-15 and 17.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 6-8 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation for the "molar ratio A:B in the range 6:5 to 1:2" of claim 6 and claim 7 (and its dependent claim 12) lack support directly or indirectly for the molar ratio A:B in the range 4:3 to 1:10 because the upper range for A of 6-5 in claims 6 and 7 are outside the upper range of A is 4 of claim 1.

Claim 8 depends from canceled 4 and does not provide a further limitation of the instant claimed invention. It is suggested that applicants should cancel claim 8 because it would duplicate claims 9, 10 and 12 that contains the same limitation.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 6-10, 12-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutierrez et al (Gutierrez) WO 96/01854 combined with Wilson's "Fuel Lubricity".

Gutierrez teach and disclose a fuel composition, comprising a middle distillate diesel fuel, note page 20, lines 12-15, and a succinimide dispersant additive comprising a reaction product between (i) a 900-2000 MW hydrocarbyl-substituted succinic acylated agent, and (ii) a polyalkylene polyamine or mixture of polyamines having at least 70% by wt. containing more than 6 N-atoms, more preferably 7 N-atoms or more, e.g., > 8 N-atoms, note page 17, line 17 to page 18, lines 1-5 and 19 to page 19 lines 1-2, page 1, lines 8-17 and page 2, lines 1-10, wherein the reaction product is present in a concentration of preferably 50 to 1500 ppm, note page 20, lines 15-17, the 50 to 1500 ppm additive of patentee encompasses the 10-400 ppm additive of instant claims 9-10

and 12, the 40-200 ppm of instant claim 13 and its 500 to 50,000 ppm friction modifiers, note page 22, line 6 encompasses and the 50 to 500 ppm of instant claim 14.

The instant claims require polyamines having 3 to 5 nitrogen atoms.

Gutierrez clearly teaches that commercial TEPA having three and four nitrogen atoms and commercial PAM having a mixture of ethylene amines where TEPA and pentaethylene hexamine (PEAA) are commercially available. Patentee further teaches that heavier cuts PAM have improved dispersancy when compared to commercial PAM under similar conditions with the same polymer backbones, note the bridging paragraph of pages 3-4 and the first full paragraph of page 4.

Thus the skilled artisan would have been motivated with the teaching of Gutierrez to use a commercial TEPA or commercial PAM containing 3 to 5 nitrogen atoms that correspond to the nitrogen compound of the instant claims as the polyamine reactant for the dispersant additive, particularly if improved dispersancy was not a major concern in the fuel oil composition.

With respect to the molar ratio A:B in the range 4:3 to 1:0 of instant claim 1 and with respect to the molar ratio A:B is in the range 6:5 to 1:2 of instant claims 6-8, Gutierrez teaches the artisan in the art that increasing the stoichiometric ratio of amine to polymer raises the amine content, but such increase results in significant levels of free unreacted polyamine which is detrimental to diesel engine and elastomer seal performance, note the first full paragraph of page 17. The artisan working in the art with the teachings of Gutierrez would have been motivated to raise the molar ratio of A:B in

the range 4:3 to 1:10 or 6:5 to 1:2 to avoid significant levels of free unreacted polyamine, which is detrimental to diesel engine and elastomer seal performance.

With respect to the one step process of instant claims 15 directed to admixing the additive to the fuel oil, Gutierrez clearly teaches the artisan in the art that the additive is added to the fuel oil. Thus the teachings of Gutierrez render obvious the one step process for preparing the instant fuel oil composition and the fuel oil composition. When the additive of Gutierrez is admixed to its fuel oil, a fuel oil composition is produced that is the same as the admixing of the additive with the fuel oil producing a fuel oil composition of instant claim 15 rendering obvious the said claim.

Gutierrez et al are silent to applicant's teaching to a fuel having 0.2 or less sulfur. It is the Examiner position that the use of low sulfur fuel e.g., 0.2 or less sulfur, would be obvious in view of the teachings of Wilson.

Wilson teaches that it is state of the art knowledge that since October 1993, environmental legislation in the USA has required the sulfur content of diesel fuel for vehicles to be less than 0.05 per cent. It is generally accepted that it is not so much the removal of the sulfur as the loss of the polar oxygenated compounds and polycyclic aromatics, including nitrogen-containing compounds, which is responsible for the reduced boundary lubricating ability of severely refined fuels. The sulfur level is merely a convenient means of measuring the degree of refinement, note page 11, column 1. It would be obvious to the artisan in the art to use the low sulfur diesel fuel of Wilson as the low sulfur diesel fuel of Gutierrez to meet the environment legislation requirement to reduce the fuel sulfur level to 0.05%.

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Instant claim 17 is directed to a method of operating a compression-engine comprising introducing into the combustion chambers of said engine the fuel oil composition of claim 1. The fuel composition of Gutierrez is designed for use in the combustion chamber of a compression-ignition engine. It would be obvious to the artisan in the art to introduce the fuel composition of Gutierrez into the combustion chamber of a compression-ignition engine to extract the energy from the fuel to rendering obvious instant claim 17.

The data and results presented in Tables 1-5 of the instant application have been carefully studied. Additive A disclosed in Table 1 on page 14 is directed to a 950 Mn polyisobutenyl succinic anhydride reacted with tetraethylenepentamine (TEPA) in a succination ratio of 1.1:1 prepared by method A, note page 15 at the top. This same additive was used as a representative of the compound of the instant application in Tables 1 and 2. Applicants instant additive appears to be the same commercially produced additive of Gutierrez produced with (TEPA). The teachings of Gutierrez that the succinic additive should be used in a greater ratio than the amines to avoid unreacted amines in reaction product that are determiner to the diesel engines render the instant claims obvious. It is further noted on record that after a careful study of the instant data and results reveal that the instant claims instant claims are much broader in scope than the data relied upon to show unexpected results. There are no claims of record directed to the examples, which are relied upon showing the results presented in Tables 2-5. Therefore the data and results cannot be relied upon to rebut the rejection made of record. The instant claims are render obvious by the teachings of Gutierrez.

Applicant's arguments filed April 11, 2003 have been fully considered but they are not persuasive.

Applicants arguments that the amendments to the claims limiting the amines to those having no more than 5 nitrogens places the instant claimed invention outside the scope of Gutierrez requiring that the polyamines contain more than 6 nitrogens per molecule.

Applicants' arguments is not convincing for the following reasons:

Gutierrez clearly teaches that commercial TEPA having three and four nitrogen atoms and commercial PAM having a mixture of ethylene amines where TEPA and pentaethylene hexamine (PEAA) are commercially available. Patentee further teaches that heavier cuts PAM have improved dispersancy when compared to commercial PAM under similar conditions with the same polymer backbones, note the bridging paragraph of pages 3-4 and the first full paragraph of page 4.

Thus the skilled artisan would have been motivated with the teaching of Gutierrez to use a commercial TEPA or commercial PAM containing 3 to 5 nitrogen atoms that correspond to the nitrogen compound of the instant claims as the polyamine reactant for the dispersant additive, particularly if improved dispersancy was not a major concern in the fuel oil composition.

The data and results presented in Tables 1-5 of the instant application have been carefully studied. It is noted that the Additive A disclosed in Table 1 on page 14 is directed to a 950 Mn polyisobutenyl succinic anhydride reacted with tetraethylenepentamine (TEPA) in a succination ratio of 1.1:1 prepared by method A,

note page 15 at the top. This same additive was used as a representative of the compound of the instant application in Tables 1 and 2. Applicants instant additive appears to be the same commercially produced additive of Gutierrez produced with (TEPA). The teachings of Gutierrez that the succinic additive should be used in a greater ratio than the amines to avoid unreacted amines in reaction product that are determiner to the diesel engines render the instant claims obvious. It is further noted on record that after a careful study of the instant data and results reveal that the instant claims instant claims are much broader in scope than the data relied upon to show unexpected results. There are no claims of record directed to the examples, which are relied upon showing the results presented in Tables 2-5. Therefore the data and results cannot be relied upon to rebut the rejection made of record. The instant claims are render obvious by the teachings of Gutierrez.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

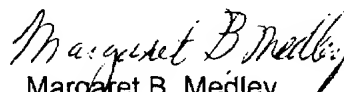
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret B. Medley whose telephone number is 703-308-2518. The examiner can normally be reached on Monday-Friday from 7:30 am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Margaret B. Medley
Primary Examiner
Art Unit 1714

M. B. Medley
June 28, 2003